2012 Workshop: Large scale waves

Long title
MLT and thermosphere response to large-scale wave activity
Conveners
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Description

This workshop addresses recent discoveries in lower-upper atmosphere coupling by large-scale waves such as tides and planetary waves including wave-wave and wave-mean flow interactions. Both observational and modeling studies are welcome. Science questions to be addressed include:

- How does the wave spectrum evolve temporally and spatially in the MLT and thermosphere?

- How does the mean state of the MLT and thermosphere respond to wave forcing?

- What are the origins of the waves and their variability?

Agenda

June 25 (Friday)

13:00-15:00 Mountain Time CEDAR session: None-storm time variations in the ionosphere and thermosphere

- Xuquang Cai, Variations in thermosphere composition and ionosphere total electron content under ‘geomagnetically quiet’ conditions at solar-minimum
- Wenbin Wang, Model simulations of IMF By effects on middle latitude neutral composition during quiet times
- Yen-Jung Wu, the quasi-6-day wave and its modulation on O/N2 ratio from ICON and GOLD
- Qian Wu, Understand Penetrating Electric Field During Northward and Southward IMF Bz Conditions
- Chaosong Huang, Ionospheric electric fields and currents caused by solar wind pressure impulses during non-storm times

- Cheryl Huang, high-latitude perturbations in neutral density maxima
- Jesper Gjerloev, Limitations of magnetic indices in geospace specification
- Larisa Goncharenko, Effects of Antarctic SSW of Sep 2019 on ionosphere and thermosphere over US and Europe
- Ying Zou, Effects of non-storm time SAPS on the upper thermosphere

Justification

Neutral waves are a prime example of nonlinearity in the atmospheric system because of variability produced by wave-wave and wave-mean interactions. Furthermore, waves redistribute solar energy deposited in the lower part of the atmosphere back into the upper atmosphere, and as such are a means to map lower atmospheric variability into the upper atmosphere. This directly pertains to the systems perspective and to strategic thrusts 1 and 5 in the new CEDAR plan.

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